

Remarks

I. Status of the Application and Claims

As originally filed, the present application had a total of 16 claims. All of these were cancelled in previous prosecution and new claims 17-36 were added. A Request for Continued Examination was filed for the application on March 18, 2005 and the present Office Action indicates that this has now been entered.

II. Recognition of Priority Claim

On March 18, 2005, Applicants filed a Petition Under 37 C.F.R. § 1.78(a)(3) in which they requested that the present application be amended to claim priority to U.S. application 09/531,267 which was filed on March 20, 2000. Applicants have now received a Decision from the Office of Petitions granting this request (copy enclosed). This means that, if the '267 application supports the present claims, Applicants have the benefit of the earlier filing date, *i.e.*, March 20, 2000 and, as a result, three of the references cited by the Examiner, *i.e.*, Mockel, Dusch and Dunican, would *not* constitute prior art that can be used in maintaining a rejection.

The Rejections

I. Rejection of Claims Under 35 U.S.C. § 103

On pages 3-6 of the Office Action, the Examiner rejects all pending claims under 35 U.S.C. § 103 as being unpatentable over Dunican, *et al.* (WO 01/004322) in view of Möckel, *et al.* (EP 1 096 013) or Dusch, *et al.* (U.S. 2005/019648) and JP 09-244661. The Examiner alleges that these references, when taken in combination, render all of Applicants' claims unpatentable on obviousness grounds.

Applicants respectfully traverse this rejection.

The major elements present in the pending claims are:

- a) The zwf gene of either SEQ ID NO:8 or SEQ ID NO:10. The gene shown as SEQ ID NO:8 is from *Brevibacterium falvum*, is

484 amino acids long and has a sequence that is essentially the same as that disclosed in the JP 09-224661 reference cited by the Examiner. The *zwf* gene shown as SEQ ID NO:10 is from *Corynebacterium glutamicum*, is 514 amino acids long and has an N-terminal sequence that is significantly different from that of SEQ ID NO:8 and in the '661 reference. The Examiner appears to recognize these structural differences, but relies upon the Dunican reference to argue that they would have been obvious.

- b) A bacterium containing a *zwf* gene according to SEQ ID NO:8 or SEQ ID NO:10 which is used in the fermentative production of an amino acid and which also includes an attenuated *poxB* gene. The Examiner relies upon the Mockel and Dusch references as disclosing attenuation of *poxB* as a means of increasing bacterial amino acid production.

Overall, the Examiner's contention is that when the teachings of the '661 application, Dunican, and either Möckel or Dusch are combined, all of Applicants' claimed inventions are rendered obvious. Even though Applicants' claims to priority to the '267 application have now been established and this application was filed before Dunican and Möckel or Dusch, the Examiner argues that Applicants are not entitled to the benefit of '267 because it does not fully support the present claims. In particular, the Examiner argues at the bottom of page 5 of the Office Action that the '267 application does not describe *zwf* genes encoding the proteins of SEQ ID NO:8 and 10.

Applicants respectfully request that the Examiner reexamine the '267 application, a copy of which was submitted as Exhibit B in the documents filed on March 18, 2005 (second copy enclosed herewith). Applicants respectfully submit that this document does, in fact, support the claims that are now pending. More specifically:

- A. The '267 application discloses both the zwf sequence of *B. falvum* (SEQ ID NO:8 in the present application) and the zwf sequence of *C. glutamicum*. In particular, the Examiner's attention is directed to page 2 of the '267 application, lines 10-15 which cite JP 09-224661. Probes derived from the sequence in '661 were used in obtaining the corresponding zwf gene from *C. glutamicum* (see page 9 of '267, line 30 – page 10, line 8) and the specific sequence corresponding to SEQ ID NO:10 (both amino acid and DNA sequences) are shown as SEQ ID NOs:2 and 7 in the '267 application. The Examiner's comments with respect to valine as the first amino acid are correct as would be recognized by those of skill in the art. In fact, Applicants believe that the inclusion of valine as the first amino acid was actually the result of a glitch in older Patent-In software which failed to recognize that the codon gtc normally encodes valine except when in the first position, in which case it encodes methionine.
- B. The '267 application discloses the attenuation of the poxB gene as a means for increasing the fermentative production of amino acids. This may be seen on page 16 of the '267 application, lines 8-18, see particularly, lines 15 and 16.
- C. The '267 application discloses that a gene encoding zwf can be amplified in bacteria to increase amino acid production either when used alone or in combination with an attenuation of poxB. This may be seen on page 12 of '267, lines 25-28 and page 16, lines 8-18.
- D. The '267 application not only discloses the elements presently claimed, but it also provides experimental support and claims the same inventions. Examples 1-8 are concerned with the isolation of zwf from *C. glutamicum*, its sequencing and cloning. Examples 9-11 report the results of experiments in which bacteria transformed with both zwf and a second gene, opcA, may be used in the fermentative production of amino acids. Claim 8, on page 66 of the '267 application is specifically directed to a process for producing amino

acids using bacteria in which, *inter alia*, the *zwf* gene is amplified, and claim 12 expressly encompasses such bacteria that are further modified by the attenuation of the *poxB* gene.

Conclusion

In light of the above considerations, Applicants submit that every element in the references cited by the Examiner is clearly and expressly present in the '267 application. Not only are the elements recited, but they are part of claims that are directed to bacteria that have been modified in the same manner as that now claimed and which are used to produce amino acids by fermentation. Thus, Applicants are entitled to the benefit of the '267 filing date for the claims that are now pending and, as a result, Dunican, Möckel and Dusch do not constitute prior art that can be used in maintaining a rejection under § 103. It is therefore respectfully requested that the Examiner's rejection of claims on obviousness grounds be withdrawn.

II. Provisional Rejection of Claims on Obviousness-Type Double Patenting Grounds

On pages 6-11 of the Office Action, the Examiner rejects pending claims under the judicially created doctrine of obviousness-type double patenting. Since this is a provisional rejection, Applicants would like to defer responding until such time as one of the two pending applications is allowed. It is Applicants' understanding that at that time, the provisional rejection in the allowed application is withdrawn and may be imposed by the Examiner in the application that is still pending.

Conclusion

In light of the discussion above, Applicants believe that all of the Examiner's rejections have been overcome. It is therefore respectfully requested that these rejections be withdrawn and that the claims presently pending in the application be allowed.

If, in the opinion of the Examiner, a phone call may help to expedite the prosecution of this application, the Examiner is invited to call Applicants' undersigned attorney at (202) 419-7013.

Respectfully submitted,

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Attachments:

1. 9/28/05 Decision on Petitions
2. U.S. Appl. 09/531,267